CASE REPORT

Amyand Hernia on Computerized Tomography: A Rare Case Report

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Abstract

A hernia occurs when an organ or part of it protrudes through the usual surrounding tissue or wall and typically occurs because of weakness in the muscular layer or a congenital/acquired defect. It can be either reducible, meaning the herniated contents can return to the cavity, or irreducible/incarcerated, indicating that they cannot be returned. An incarcerated hernia can lead to strangulation, resulting in a loss of blood supply and the development of gangrene. While the most common type of hernia is inguinal, Amyand hernia is a very uncommon type with an incidence of less than 1%. It can lead to complications like acute appendicitis, which occurs in approximately 0.1% of cases. Pre-operative diagnosis is challenging, and it is often an unexpected discovery, increasingly detected through abdominal CT scans. As a result, CT scans play a crucial role in its management.

Keywords: *Amyand hernia, appendix, computerized tomography, inguinal hernia, appendicitis.*

INTRODUCTION

An Amyand hernia refers to a hernia that includes the appendix. A hernia occurs when a part of an organ protrudes through the muscle wall. Inguinal hernias are the most common among different types of hernias. Amyand hernias, on the other hand, are deemed uncommon, entailing the protrusion of the appendix through the inguinal canal. The occurrence of Amyand hernias is less than 1% [1-4]. Inguinal hernias containing the appendix are infrequent, with reported occurrences ranging from 0.28% to 1%. The probability of appendicitis occurring within this type of hernia is low, estimated to be between 0.07% and 0.13%. Typically, these hernias occur on the right side, which aligns with the normal intra-abdominal location of the appendix. However, there have been a few reported cases of left-sided Amyand hernias [1]. Encountering an incarcerated hernia, which is characterized by the inability to reduce the hernia content, is not an uncommon occurrence. Usually, the hernia contents consist of the omentum or small bowel [2]. The usual manifestation includes an enlarged and sensitive mass in the right inguinal region, accompanied by different degrees of abdominal discomfort and potential vomiting. Classic signs of appendicitis, like fever and an increased white blood cell count, are often absent [2].

Ultrasound has proven effective in diagnosing this condition in pediatric patients. However, in adults, computed tomography (CT) is more reliable due to their larger body size [1, 3, 4]. In males, inguinal hernias are usually readily identifiable on CT scans. To confirm the existence of an Amyand hernia, the sagittal and coronal sections are particularly useful for detecting the tubular appendix as they emerge from the cecum and enter the inguinal canal [1]. If an inflamed appendix is found within the hernial sac, it necessitates a modification in the surgical approach. This highlights the significance of careful observation by surgeons and radiologists regarding the hernia sac contents. The preoperative detection of Amyand hernia can be accomplished through CT scans, underscoring the essential role of imaging in directing surgical decisions [1, 3, 4].

CASE PRESENTATION

This case study involves a 64-year-old woman without known clinical comorbidities who visited the surgical outpatient department, with abdominal pain persisting for a few weeks. The pain was generalised, mild to moderate and was not relieved with taking analgesics. She was advised with some baseline investigations including complete blood count (CBC) and C-reactive protein (CRP) which were within normal range. She also had an ultrasound abdomen done at the periphery which was also unremarkable and the hernia was not addressed. She had no associated complaints. Her endoscopy showed moderate pangastritits and a small hiatal hernia. Then she was advised to get her CT abdomen done, which showed herniation of an uninflamed appendix into the right inguinal region suggestive of Amyand hernia (**Fig. 1A&B**). There are not many complications of amyand hernia however the possibility of developing acute appendicitis in hernia was explained by the surgical team to the patient.

According to Lasonoff and Basson's classification of Amyand hernia, our patient had type 1 Amyand hernia and its management includes hernial reduction and mesh replacement but our patient refused the surgical management.

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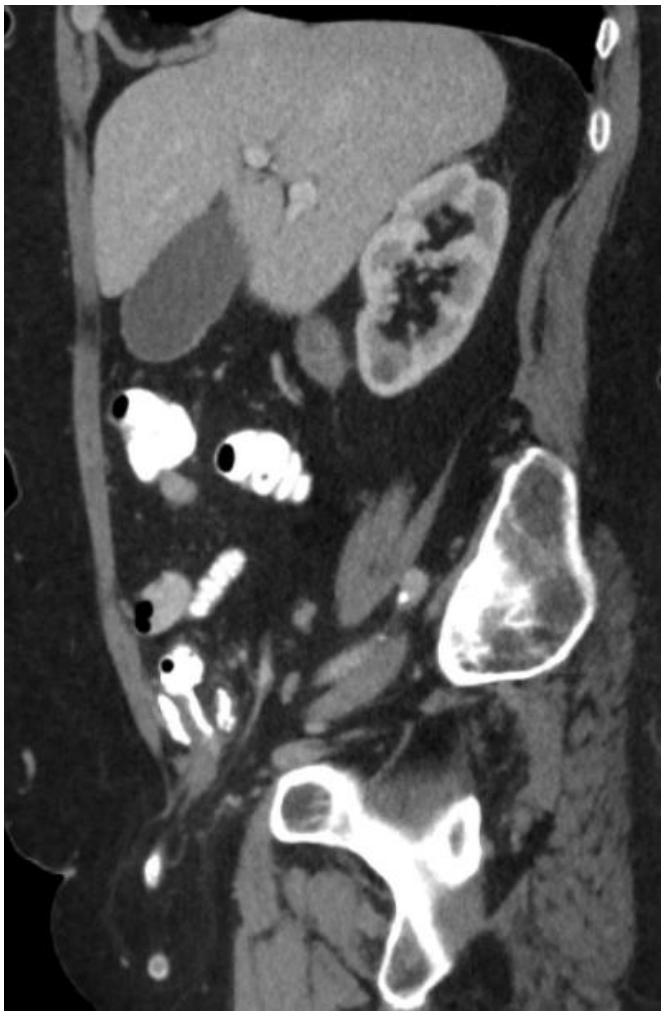

Fig. (1): (A): The image in the sagittal plane with contrast shows herniation of a contrast-filled bowel loop(appendix) into the right inguinal region representing Amyand hernia.

Fig. (1): (B): In this image in the coronal plane with contrast, we can appreciate the appendix being herniated into the right inguinal region without evidence of inflammation.

DISCUSSION

Inguinal hernia is the commonest type, of which indirect inguinal hernia is more prevalent with male predilection. Most of the time contents of inguinal hernia include omentum and small bowel loops [5]. The protrusion of a normal, inflamed or perforated appendix within the inguinal canal is not common [5]. Its incidence ranges from 0.28% to 1% [6, 7]. Incidence of appendicitis in this condition varies from 0.07% to 0.13% and that of perforated appendix is about 0.1% with mortality ranging from 15 to 30% because of severe abdominal sepsis [7-9].

Amyand hernia is more common on the right side because of situs solitus [10]. A few cases of Amyand hernia on the left side have also been reported. Amyand hernia has no sex predilection. It is reported in the neonatal period as well as in young and older patients up to 94 years of age.

It is named after Claudius Amyand, who did the first appendectomy of an 11-year-old boy with a perforated appendix inside the inguinal canal in 1736 [8, 11]. Losanoff and Basson have classified Amyand hernia into 4 types based on its appearance with its appropriate surgical management, which is listed below in Table **1** [12].

Table 1: Four types of Amyand hernia by Losanoff and Basson [12].

Types	Description	Management
1	Herniation of normal appendix into inguinal region	Reduction of hernia and mesh replacement
2	Herniation of appendix with signs of inflammation (Acute appendicitis) without abdominal sepsis.	Appendectomy
3	It includes Amyand hernia with acute appendicitis and abdominal wall sepsis.	Laparotomy, appendectomy
4	This includes Amyand hernia with acute appendicitis and concurrent abdominal pathology.	Same as type 3 plus concomitant

Mostly Amyand hernias are diagnosed at surgery because most of the cases present as incarcerated hernias rather than appendicitis. CT scan is now increasingly being used for the diagnosis of Amyand hernia. On CT scan, it appears as a tubular, blind-ending structure arising from the base of the cecum and herniating into the inguinal canal. It can also be diagnosed on ultrasound in the pediatric population. On ultrasound, it appears as a tubular, blind-ended, non-compressible bowel-related structure herniating into the inguinal region. However, on ultrasound, it is difficult to diagnose if the appendix is not inflamed.

The management of Amyand hernia is different depending on the type. In our case, the patient has type 1 Amyand hernia and was referred for hernial reduction and mesh repair but she refused the procedure.

CONCLUSION

Contrary to assertions in numerous academic publications, imaging can rapidly diagnose an Amyand hernia. It is important to emphasize that preoperative CT scans offer crucial insights into the hernia sac contents, facilitating surgical management and preventing unexpected complications during the operation.

CONSENT FOR PUBLICATION

We have taken permission from the patient to use her scan images and information regarding her condition which we have included in this case report.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

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Declared none.

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